

US

Claims

1. A gas generating composition comprising (a) glass powder and (b) at least one selected from the group consisting of aluminum hydroxide and magnesium hydroxide.

2. A gas generating composition comprising the following components (a) to (d):

(a) glass powder,

(b) at least one selected from the group consisting of aluminum hydroxide and magnesium hydroxide,

(c) an organic compound as fuel and

(d) an oxygen-containing oxidizing agent.

3. The gas generating composition as claimed in Claim 1 or 2, which further comprises at least one selected from the group consisting of the following components (e), (f) and (g), if required:

(e) a binder,

(f) an additive selected from a metal oxide and a metal carbonate and

(g) silicon dioxide having a specific surface area of 100 to 500 m²/g.

4. The gas generating composition as claimed in Claim 3, wherein the content of the component (a) is 0.1 to 20% by mass, the content of the component (b) is 0.1 to 20% by mass, the content of the component (c) is 30 to 60% by mass, the content of the component (d) is 60% by mass or less, the content of the component (e) is 10% by mass or less, the content of the component

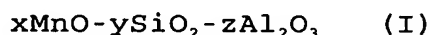
(f) is 10% by mass or less and the content of the component (g) is 5% by mass or less.

5. The gas generating composition as claimed in Claim 1 or 2, wherein the glass powder as component (a) is an amorphous material consisting of a mixture of metal oxides and/or non-metal oxides.

6. The gas generating composition as claimed in Claim 5, wherein the metal oxides are selected from the group consisting of silicon dioxide, sodium oxide, potassium oxide, calcium oxide, magnesium oxide, barium oxide, lead oxide, boron oxide and aluminum oxide.

7. The gas generating composition as claimed in Claim 1 or 2, wherein the glass powder as component (a) is selected from the group consisting of quartz glass, 96% quartz glass, soda lime glass, lead glass, aluminoborosilicate glass, borosilicate glass, aluminosilicate glass, phosphate glass and chalcogen glass.

8. The gas generating composition as claimed in Claim 1 or 2, wherein the glass powder as component (a) is represented by the following formula (I):



in which x, y and z are the mole number.

9. The gas generating composition as claimed in Claim 8, wherein proportions of x, y and z of the formula (I) are 35 to 50 mole % of x, 30 to 60 mole % of y and 5 to 20 mole % of z.

10. The gas generating composition as claimed in Claim 2, wherein the fuel as component (c) is at least one selected

from the group consisting of tetrazole compounds, guanidine compounds, triazine compounds and nitroamine compounds.

11. The gas generating composition as claimed in Claim 2, wherein the oxygen-containing oxidizing agent as component (d) is at least one selected from the group consisting of nitrates, perchlorates, chloric acid, a basic metal nitrate and ammonium nitrate.

12. The gas generating composition as claimed in Claim 3, wherein the binder as component (e) is at least one selected from the group consisting of carboxymethyl cellulose, sodium carboxymethylcellulose, potassium carboxymethylcellulose, carboxymethylcellulose ammonium, cellulose acetate, cellulose acetate butyrate, methyl cellulose, ethyl cellulose, hydroxyethyl cellulose, ethylhydroxyethyl cellulose, hydroxypropyl cellulose, carboxymethylethyl cellulose, fine crystalline cellulose, polyacrylamide, an aminated product of polyacrylamide, polyacryl hydrazide, a copolymer of an acrylamide and a metal acrylate, a copolymer of polyacrylamide and a polyacrylic ester, polyvinyl alcohol, acrylic rubber, guar gum, starch and silicone.

13. The gas generating composition as claimed in Claim 3, wherein the additive as component (f) is at least one selected from the group consisting of metal oxides including cupric oxide, iron oxide, zinc oxide, cobalt oxide, manganese oxide, molybdenum oxide, nickel oxide, bismuth oxide, gallium oxide, silica or alumina, metal hydroxides including cobalt hydroxide or iron hydroxide, metal carbonates or basic metal carbonates

including cobalt carbonate, calcium carbonate, magnesium carbonate, a basic zinc carbonate or a basic copper carbonate, composite compounds of metal oxides or metal hydroxides including Japanese acid clay, kaolin, talc, bentonite, diatomaceous earth or hydrotalcite, metal acid salts including sodium silicate, mica molybdate, cobalt molybdate or ammonium molybdate, silicone, molybdenum disulfide, calcium stearate, silicon nitride and silicon carbide.

14. The gas generating composition as claimed in Claim 3, wherein the component (b) is aluminum hydroxide and (e) the binder is contained in an amount of 1.0 to 5.0 mass %.

15. A gas generating composition comprising glass powder, guanidine nitrate and a basic copper nitrate.

16. A gas generating composition comprising glass powder, a mixed fuel containing guanidine nitrate and a basic copper nitrate.

17. The gas generating composition as claimed in Claim 16, wherein the mixed fuel containing guanidine nitrate is a mixed fuel of guanidine nitrate and at least one selected from the group consisting of nitroguanidine, melamine, monoaminoguanidine nitrate, diaminoguanidine nitrate and triaminoguanidine nitrate.

18. The gas generating composition as claimed in Claim 15 or 16, which further comprises at least one selected from the group consisting of aluminum hydroxide and magnesium hydroxide.

19. A molded article of the gas generating composition

being in the shape of a single perforated cylinder or a perforated cylinder, obtained by extrusion-molding the gas generating composition as defined in any one of Claims 1, 2, 15 and 16.

20. An inflator for air bag, using the gas generating composition as defined in any one of Claims 1, 2, 15 and 16 or using the molded article of the gas generating composition as defined in Claim 19.